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THE ZOOLOGIST:

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OF

NATURAL HISTORY

AND

JOURNAL FOR RECORDING FACTS & ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CLXXXVIII.

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Two Novelties for the next Edition of the 'Insect Hunters.'—There are many very minute insects and beetles which come out only at night. These are very interesting to the entomologist, but at the same time very difficult to catch. Toads are not unfrequently turned into beetle-traps, and made to catch these little night insects. A brigade of skirmishing toads is turned loose into the garden in the evening: the toads, unconscious why so much kindness is shown to them, do their best to get a good meal; but in the morning their master comes and makes them eject all their night work, which he does without hurting them. In this way many curious and rare specimens of minute nocturnal insects have been obtained. I have heard of a capital way to catch night-moths, with little trouble: it was practised by a brave-hearted and gallant artillery officer,—alas! now no more. He lived in a charming country house near St. George's Hill, at Weybridge. The woods thereabouts are full of curious insects, and he used to catch the moths by smearing the trunk of a tree with sugar and beer boiled together. A lantern was then placed near the trap; the moths, attracted by it, came flying round, and were caught by the sticky mixture.—*Buckland's Curiosities of Natural History.*

Occurrence of Sphinx Nerii at Brighton.—I have lately had the pleasure of placing in my cabinet a magnificent specimen of Sphinx Nerii: the insect was accompanied by the following note:—"The specimen of Sphinx Nerii was taken on the 16th of August, in a room in Mount Sion Place, at the back of where I live, by a friend of mine. Being a large moth, he secured it under a half-pint tumbler, in which it had been all night when I first saw it: it appears to have flown in at a window, attracted by light. Mr. Samuel Stevens was at Brighton on the day it was brought to me, and saw the insect while it was still alive."—*Lewis Tidy; 16, Crown Gardens, Brighton, January* 20, 1858. This note will, I think, establish the claim of this individual specimen to a place in a British collection.—*A. F. Sheppard; 16, North Buildings, Finsbury, January* 22, 1858.

Trochilium Vespiforme (Linn.?), *Asiliformis* (Fab.).—Mr. Gardner (Zool. 5924) wishes to make it appear that this species is almost unknown upon the Continent. If he is ignorant of the fact, I beg to inform him that he will not find any great difficulty in procuring specimens from Paris, "set in the British style." I have seen them in M. Becker's boxes as well as in the Paris collections. The larva of this species feeds upon the poplar, and its rarity is probably more apparent than real. Mr. English once found several pupæ-cases protruding from an aspen in our woods, which, from their size, I have no doubt belonged to this species. I took three specimens in our garden, all of them near the trunk of an aspen used as a support to a tree, and which was brought from our woods, and have met with one or two others in this neighbourhood. —*Henry Doubleday; Epping, January* 14, 1858.

Proposed Generic Name for the Phlogophora meticulosa of our Collections.—It is very possible that on the Continent the genus Phlogophora, *Treitschke* and *Boisduval*, and consequently of our cabinets, is described by some other author or authors under another title; but as I am not aware of the fact, not having an opportunity of examining any works relating thereto (and until this is ascertained), I propose that the alterations in our lists should stand as follows:—

PHLOGOPHORA, *Treit.*, *Boisd.*
lucipara, *Hübn.*, *Linn.*, *&c.* (Euplexia lucipara, *Steph.*).
empyrea, *Hübn.*, *Treit.*

BRITISH MUSEUM

And that meticulosa should be raised to a new genus, under the name of Racoptera, referring to the ragged or wrinkled appearance of the insect when at rest. If any one is aware of this species, or the Continental ones allied to it, having been described otherwise than as Phlogophora, I should feel obliged by their furnishing such information through the medium of the pages of the 'Zoologist.'—*John Scott; Southfield Villas, Middlesbro'-on-Tees, January 5,* 1858.

British Geometrina, as arranged and named in M. Guenée's first Volume of the Geometræ of the whole world.—

- Urapteryx
  - Sambucaria
- Epione
  - Vespertaria
  - *Parallelaria*, D. L.
  - Apiciaria
  - Advenaria
- Rumia
  - Cratægata
- Venilia
  - Maculata
- Angerona
  - Prunaria
- Metrocampa
  - Margaritata
- Ellopia
  - Fasciaria
- Eurymene
  - Dolobraria
- Pericallia
  - Syringaria
- Selenia
  - Illunaria
  - Lunaria
  - Illustraria
- Odontopera
  - Bidentata
- Crocallis
  - Elinguaria
- Ennomos
  - Alniaria
  - Tiliaria
  - Fuscantaria
  - Erosaria
  - Angularia
- Himera
  - Pennaria
- Phigalia
  - Pilosaria
- Nyssia
  - Zonaria
  - Hispidaria
- Biston
  - Hirtaria
- Amphydasis
  - Prodromaria
  - Betularia
- Hemerophila
  - Abruptaria
- Cleora
  - Viduaria
  - Glabraria
  - Lichenaria
- Boarmia
  - Repandaria
  - Rhomboidaria
  - Abietaria
  - Cinctaria
  - Roboraria
  - Consortaria
- Tephrosia
  - Consonaria
  - Crepuscularia
  - Extersaria
  - Punctulata
- Gnophos
  - Obscurata
- Dasydia
  - Obfuscata
- Psodos
  - Trepidaria
- Mniophila
  - Cineraria
  - *Corticaria*, D. L.
- Bolitobia
  - Fuliginaria
- Pseudopterna
  - Cytisaria
- Geometra
  - Papilionaria
  - Smaragdaria
- Nemoria
  - Viridata
- Iodes
  - Vernaria
  - Lactearia
  - *Æruginaria*, D. L.
- Phorodesma
  - Bajularia
- Hemithea
  - Thymiaria
  - *Æstivaria*, D. L.
- Ephyra
  - Poraria
  - Punctaria
  - Trilinearia
  - Omicronaria
  - Orbicularia
  - Pendularia
- Hyria
  - Auroraria
- Asthena
  - Luteata
  - Candidata
  - Sylvata
  - Blomerata
- Eupisteria
  - Heparata
- Venusia
  - Cambricaria
  - *Erutaria*, D. L.
- Acidalia
  - Ochreata
  - *Perochraria*, D. L.
  - Rubricata
  - Scutulata
  - Bisetata

Acidalia
- *Reversata*, D. L.
- Reversata
- *Bisetata*, D. L.
- Contiguaria
- *Eburnata*, Stainton
- Rusticata
- Osseata
- Holosericeata
- Incanaria
- *Virgularia*, D. L.

Acidalia
- Obsoletaria?
- Ornata
- Promutata
- *Immutata*, D. L.
- Straminata
- *Marginepunctata*, D. L.
- Subsericeata
- Immutata
- *Cæspitaria*, D. L.
- Remutata

Acidalia
- Commutata
- *Nitidaria*, D. L.
- Strigilata
- *Prataria*, D. L.
- Imitaria
- Emutaria
- Aversata
- Inornata
- Degeneraria
- Emarginata

—*Communicated by Henry Doubleday, Esq.* [The names added in *Italics* are those used in Mr. Doubleday's 'List.']

Occurrence of Eupithecia pernotata in England.—Last summer I bred a specimen of an Eupithecia which I thought must be new to this country: I sent it to my friend M. Guenée, and he informs me that it is his Eupithecia pernotata, only known as a native of Piedmont till last year, when he received a single male captured in France. I believe mine was reared from larvæ kindly sent to me by Mr. Machin, who found them upon the golden rod (*Solidago Virgaurea*); the others produced castigata.—*Henry Doubleday; Epping, February* 3, 1858.

[This is quite a large species, pale-coloured with a broad reddish border round the wings.—*Ed.*]

Two British Geometræ included under the name Phibalapteryx gemmaria: Chilo obtusellus of Stainton = Tinea paludella of Hübner.—I have for some time suspected that two distinct species of Geometræ were confounded together in this country under the name of gemmata. Through the kindness of Mr. Benjamin Standish and of Mr. Harding, of Stapleton, I am now able to state that my opinion was correct. In 'Lepidoptera Britannica,' p. 340, Mr. Haworth describes a Geometra, then in the collection of Mr. Francillon, under the name of angustata: this is the true gemmata of Hübner (Geo. fig. 283, Catalogue No. 3219). Haworth's words, "Alæ—puncto medio ordinario ocellari, iride albida, pupilla atra," leave no doubt upon the subject. Mr. B. Standish possesses a beautiful female, taken by himself in his garden at Camberwell, and last autumn another specimen, also a female, was taken near Liverpool, and sent to me for examination. Another species very closely allied has occurred more frequently: Mr. Harding kindly lent me a male, which he took near Bristol, to send to M. Guenée, and a short time afterwards Mr. Norcombe kindly presented me with a specimen, also a male. My friend M. Guenée has examined these two individuals, and informs me that this Geometra is the fluviata of Hübner (Geo. fig. 280—281 and Catalogue No. 3220), this and gemmata being the only two species of Hübner's Coitus or genus Plemyria. Although closely allied they are readily distinguished; the central black spot in the superior wing of fluviata is destitute of the white iris, and there is a short oblique line at the apex of the wing, which is wanting in gemmata. Mr. Greening has taken this species in the North of England, and several specimens have occurred in the South. On the Continent it is a Southern species, Boisduval only giving Sicily as a habitat; both species are more frequently found near the coast than inland. M. Guenée also informs me that the Chilo obtusellus of Mr. Stainton is the Tinea paludella of Hübner, Chilo paludellus of Duponchel and Crambus paludellus of Guenée's Index. I received two specimens from M. Becker about twelve years since, but the number attached to them was omitted in the list sent, and they remained nameless in my collection of European Lepidoptera: upon its discovery at Horning Fen I wrote to M. Becker, sending the number attached to the insect, and requesting him to give the name; in reply he stated that he had declined collecting Micro-Lepidoptera, and had mislaid his Catalogue, and could not therefore furnish me with the name of this species. A short time since I forwarded a pair to M. Guenée, and he kindly gave me the name.—*Id.; January* 13, 1858.

A supposed new species of Tinea allied to T. rusticella.—Some years ago, when I was in the habit of visiting the famous district of Rannoch, I used to be astonished at capturing, far away in the woods, either at rest on the trunks of the black firs, or by beating these trees, specimens of what appeared to me at the time to be Tinea rusticella. From the middle of June until the first week in July they are not uncommon, and are very frequently to be met with on those trees, at the foot of which are the ant-hills which yield us T. ochraceella: its habit, however, seems to me to be so much at variance with the T. rusticella of our cabinets, although its resemblance to the insect above-named is very great, that, after long examination, I feel convinced they ought to be separated; and first let us set aside the difference in habit, and look at a feature impressed on the insect which at once catches the eye of all those who see the two side by side, *viz.* the much more distinct ochreous spot in the middle of the wing, and a large ochreous somewhat triangular patch at the anal angle, this latter never occurring in examples of our T. rusticella, so far as I am aware; moreover, I think the general appearance of the wing is darker in the Rannoch species, thereby giving a brighter and more decided character to the ochreous markings: in all other respects they seem to harmonize,—the ochreous head and face, pale palpi, irroration on the wings, pale ochreous cilia varied with fuscous, and pale gray posterior wings; and from these circumstances it may be thought that the distinguishing features are of too superficial a nature on which to found a species, and that these may be the result of the difference of climate; but let us now assume that climate may have a little to do in the matter. Will climate entirely alter the habits of an insect, so that that species which is common enough with us in our houses and outhouses should take itself away to the woods, far from the habitation of man, on being found a few hundred miles North or South, as the case might be? Species may vary, but the home of the insect has a similarity in all cases, and I think we have grounds on which to base a supposition that the two insects are distinct species. Many have called my attention to them with the question, "Do you think there are two species united?" and as often have I looked on them in silence, not daring to hazard a positive reply. Length of observance, however, combined with the above oft-repeated question, and the convictions of several other entomologists, lead me to describe them as such; and any one with but a limited knowledge of the Micros is able to separate them at a glance from the description I have given. In the 'Insecta Britannica,' vol. iii. p. 27, and immediately following the description of T. rusticella, Mr. Stainton alludes to this insect with a query as to whether it is a variety; but until both insects are bred from the same batch of eggs I will adhere to my present views; and now that the gentleman there named as having taken it has passed from amongst us, after a long and laborious life spent in enriching our cabinets with rarities from the North and from the South, and whose untiring efforts, year after year, when an age had grown upon him which unfits and incapacitates most men from working, "filled our vacant places," as a slight tribute to his memory, I propose for it the name of Tinea Weaverella.—*John Scott; Southfield Villas, Middlesbro'-on-Tees, January* 5, 1858.

The Tzetze.—Mr. Bracy Clark (Zool. 5720) claims the "identification of the tzetze of Africa with Œstrus Bovis." Specimens of the last-named insect may be, as Mr. Clark states, "exceedingly scarce," and since he has been so fortunate as to obtain examples, it is to be regretted that he did not wait to compare his Œstrus with a genuine tzetze, even if he could not accomplish this at the British Museum, before publicly broaching a theory for which there is not the slightest foundation. Mr. Clark refers to Dr. Livingstone's report of the annoyance occasioned by the tzetze; but he could not, in July last, have seen the detailed account of the insect, its operations and its form, as given in Dr. Livingstone's published 'Travels,' which completely disproves Mr. Clark's imaginary "identity." In the 'Travels' the African fly is represented (magnified) on the title-page, and again at p. 571, nearly the natural size, as well as magnified, together with the proboscis and the poison-bulb at the base greatly magnified: these figures are said to have been from a drawing by Mr. J. E. Gray, of the British Museum. The description of the insect will be found at pp. 80—83, with incidental notices of it throughout the volume. Dr. Livingstone clearly shows that the real tzetze does possess "a weapon of infliction," and that of a very formidable character, it being triple, but has not "a telescopic sort of tube for thrusting the egg down upon (into?) the skin" (Zool. 5721). The African fly, moreover, does not cause a mad alarm in the cattle by its "susurrus, or whistle," as the gadfly does, while it is "the infliction," and not the noise of its approach from which the mischief it occasions proceeds: so that in every respect Mr. Bracy Clark's suppositions are contrary to the actual facts. As some of the readers of the 'Zoologist' may have no opportunity of seeing Dr. Livingstone's 'Travels,' it may interest them to learn, not only what is not the tzetze, but also what it really is. The scientific name is Glossina Morsitans; its size rather exceeds that of the common house-fly; the colour is nearly that of the hive-bee, with three or four yellow bars across the abdomen; the wings project considerably beyond the body, and it is very active, except when chilled, which soon happens. The bite is certain death to horse, cattle and dog, but the result appears to follow not with equal rapidity in all cases: it is harmless to man, wild animals, mule, ass, goat and sheep, even to calves while sucking, though dogs die when fed upon milk. The districts where the insect prevails vary, it would seem, even arbitrarily, and that they are clearly defined; for instance, it will be found on one side of a river and not on the other, at a distance of only fifty yards. Dr. Livingstone also mentions reasons for believing that the tzetze has been introduced where formerly it did not exist; but how far we are warranted in hoping for the extinction of the pest, either partially or generally, time and a closer acquaintance with the country are, I think, required to show.—*Arthur Hussey; Rottingdean, January* 6, 1858.

Note on Anisolabia maritima, Bon.—Since my notes on this subject, published in the January number (Zool. 5895), were penned, I have submitted the specimen mentioned as being the first stage of the insect to a microscopic power of 400 diameters, in the hope that I might have been able to see some traces of the future development of the additional joints which appear in the next. I was anxious to ascertain whether my inference that they were formed at the expense of the fourth joint could thereby be strengthened, or whether, as shown by my friend Mr. Murray, in his valuable 'Remarks on the Metamorphosis and Growth of the Leaf Insect (*Phyllium scythe*),' the third joint was the source whence the great increase sprung. The result has been that no indication of any divisions can, even with that high power, be perceived; and therefore the actual observation of the act of transformation can alone, if at all, solve the question. I incline, however, to my former opinion, because in Anisolabia and all the Forficulæ the third joint retains, in all its future stages, its full length, and the small joints commence with the fourth, whilst in Phyllium the long third joint disappears in the male, in which sex only the great change occurs. It may be interesting to know that the micrometer gives ·0008th of an inch as the width of the apical joints of the antennæ at their junctions. No wonder they are so often imperfect!—*George Wailes; Newcastle-on-Tyne.*

A Systematic List of Coleoptera found in the Vicinity of Alverstoke, South Hants. By ARTHUR ADAMS, Esq., F.L.S., Surgeon of H.M. Surveying Ship 'Actæon;' and WILLIAM BALFOUR BAIKIE, M.D., F.R.G.S.

(Concluded from page 5843).

LONGICORNIA.

1. Fam. CERAMBYCIDÆ, *Kirby*.

1. Aromia, *Serv.*, *Steph.*

A. moschata, *Linn.*, *Steph.* Occasional; on willows near Stokes Bay.

2. Callidium, *Fabr.*, *Steph.*

C. Alni, *Linn.*, *Steph.* On old palings; rare.

C. variabile, *Linn.*, *Steph.* Among felled timber; rare.

3. Clytus, *Fabr.*

C. Arietis, *Linn.*, *Fabr.* Common; on flowers, and burrowing in old palings.

4. Gracilia, *Serv.*

G. pygmæa, *Fabr.* G. minuta, *Steph.* On willow-sticks and in old baskets.

2. Fam. LAMIIDÆ, *White*.

1. Leiopus, *Serv.*, *Steph.* Liopus, *Erich.*

L. nebulosus, *Linn.*, *Steph.* In dead hedges; rare.

2. Pogonocherus, *Meg.*, *Steph.*

P. hispidus, *Fabr.*, *Steph.* Old hedges, by beating; rare.

3. Fam. LEPTURIDÆ, *Leach.*

1. Strangalia, *Serv., Steph.*

S. armata, *Herbst.* S. elongata, *Steph.* Very common; on flowers, especially of Apiaceæ.

S. melanura, *Linn.* On flowers; Rowner.

2. Leptura, *Linn., Steph.*

L. tomentosa, *Fabr., Steph.* Not uncommon; on roses in gardens, on umbelliferous flowers, and on Achillea Millefolia.

L. livida, *Fabr.* (Pachyta), *Steph.* On Apiaceæ; tolerably frequent.

3. Grammoptera, *Serv., Steph.*

G. lævis, *Fabr., Steph.* On apiaceous flowers, at Rowner.

G. ruficornis, *Fabr., Steph.* On flowers of hawthorn; tolerably abundant.

EUPODA.

1. CRIOCERIDÆ, *Leach.*

1. Donacia, *Fabr., Steph.*

D. dentipes, *Fabr., Steph.* Common; on flowers of Sparganium ramosum, at Grange.

D. sericea, *Linn.* D. Proteus, *Steph.* Rare; along ditches at Grange.

D. nigra, *Fabr., Steph.* One specimen taken off sedges, at Grange.

D. Typhæ, *Brahm, Steph.* Off leaves of Carices and Sparganium ramosum.

D. simplex, *Fabr., Steph.* On leaves of Nymphæa alba.

2. Zeugophora, *Kunze, Steph.*

Z. subspinosa, *Fabr., Steph.* Taken in considerable abundance during the early part of September, on white poplars, at Grange. This, in the sun, feigns death when captured.

3. Lema, *Fabr.* Crioceris, *Steph.*

L. cyanella, *Linn., Steph.* By beating trees in copses.

L. melanopa, *Linn., Steph.* On foliage in copses; not infrequent.

4. Crioceris, *Geoff., Steph.*

A. Asparagi, *Linn., Steph.* Occasionally met with.

CYCLICA.

1. Fam. CHRYSOMELIDÆ, *Leach.*

1. Lamprosoma, *Kirby,* Oomorphus, *Steph.*
L. concolor, *Sturm., Steph.* Very rare.

2. Cryptocephalus, *Geoff., Steph.*
C. minutus, *Fabr., Steph.* Rare; beating hedges.
C. labiatus, *Linn., Steph.* Local and not abundant; on birches, at Grange.

3. Timarcha, *Redt., Steph.*
T. lævigata, *Linn., Steph.* Roadsides and hedgerows; very common.
T. coriaria, *Fabr., Steph.* Downs and warrens; common.

4. Chrysomela, *Linn., Steph.*
C. Banksii, *Fabr., Steph.* Grassy banks; not uncommon.
C. staphylea, *Linn., Steph.* Grassy banks; common.
C. Gœttengensis, *Linn., Steph.* Banks; rare.
C. hæmoptera, *Linn., Steph.* In grass on Southsea Common; scarce.
C. sanguinolenta, *Linn..* C. distinguenda, *Steph.* On Galium aperine; very abundant.
C. polita, *Linn., Steph.* Grassy banks; common.

5. Lina, *Redt.* Melasoma, *Steph.*
L. Populi, *Linn., Steph.* In some abundance on white poplars in Grange Copse.

6. Gonioctena, *Redt.* Chrysomela, *Steph.*
G. Litura, *Fabr., Steph.* On broom-flowers; in great abundance.

7. Gastrophysa, *Chev.* Phædon, *Steph.*
G. Polygoni, *Linn., Steph.* In fields; very plentiful.

8. Phædon, *Meg., Steph.*
P. Betulæ, *Linn., Steph.* Sides of wet ditches near copses; most abundant.

9. Phratora, *Chevr.* Phædon, *Steph.*
P. Vitellinæ, *Linn., Steph.* On willows; very plentiful.

10. Helodes, *Payk.*, *Steph.*

H. Phellandrii, *Linn.*, *Steph.* On Œnanthe Phellandrium in ditches at Grange; common.

2. Fam. GALERUCIDÆ, *Steph.*

1. Adimonia, *Laich.* Galeruca, *Steph.*

A. Tanaceti, *Linn.*, *Steph.* Very local; in great abundance in some years on Grange warren; found in August and September; very scarce in 1856, abundant in 1855.

A. Capreæ, *Linn.*, *Steph.* On bushes in Grange copse.

2. Galeruca, *Fabr.*, *Steph.*

G. Cratægi, *Forst.*, *Steph.* On hawthorn flowers when in full bloom.

G. calmariensis, *Linn.*, *Steph.* On heather on Browndown.

G. Nympheæ, *Linn.*, *Steph.* Banks of ponds, and on bushes in Grange copse.

3. Agelastica, *Redt.* Adimonia, *Steph.*

A. Alni, *Linn.*, *Steph.* On alders at Grange.

A. halensis, *Linn.*, *Steph.* Grassy places; not uncommon.

4. Phyllobrotica, *Redt.* Auchenia, *Steph.*

P. quadrimaculata, *Linn.*, *Steph.* Along banks of streams, on Polygonum Persicaria; rare.

5. Calomicrus, *Steph.*

C. circumfusus, *Marsh.*, *Steph.* Abundant; on foliage of Myrica Gale.

6. Luperus, *Geoff.*, *Steph.*

L. flavipes, *Linn.*, *Steph.* Abundant on alders during June and July.

7. Altica, *Linn.* Haltica, *Steph.* (1. Sub-gen. Graptodera, *Chev.*)

A. oleracea, *Fabr.*, *Steph.* (2. Sub-gen. Podagrica, *Chev.*) Among herbage, Rowner, Grange; common.

A. ærata, *Marsh.*, *Steph.* Bushes, by sweeping.

A. tripudians, *Kirby*, *Steph.* (3. Sub-gen. Crepidodera, *Chev.*) Bushes, by sweeping.

A. transversa, *Marsh.* A. ferruginea, *Steph.* Occasional.

A. rufipes, *Linn.*, *Steph.* Herbage, by sweeping.

A. nitidula, *Fabr.*, *Steph.* Herbage, by sweeping.

A. Helxines, *Fabr.*, *Steph.* Willows and hazels, by sweeping; common.

A. Modeeri, *Linn.*, *Steph.* (4. Sub-gen. Phyllotreta, *Chev.*) Willows and hazels, by sweeping; common.

A. Nemorum, *Linn.*, *Steph.* Meadows and turnip fields; abundant.

A. antennata, *E. H.*, *Steph.* Not common.

A. nigroænea, *Marsh.* Lepidii, *E. H.*, *Steph.* (5. Sub-gen. Apthona, *Chev.*) Meadows.

A. Euphorbiæ, *Fabr.*, *Steph.* Hedges, by sweeping.

A. Pseudacori, *Payk.*, *Steph.* (6. Sub-gen. Balanomorpha, *Chev.* Mantura, *Steph.*) On Iris Pseudacorus.

A. rustica, *Linn.*, *Steph.* A. semiænea, *Steph.* Trees, by sweeping.

8. Longitarsus, *Latr.* Thyamis, *Steph.*

L. Thapsi, *Marsh.*, *Steph.* Meadows; common.

L. melanocephalus, *Gyll.* L. atricilla, confinis, atriceps, *Steph.* Meadows; common.

L. ochroleucus, *Marsh.*, *Steph.* Meadows; common.

L. lutescens, *Gyll.*, *Steph.* Meadows, by sweeping.

L. tabidus, *Fabr.*, *Steph.* Copses; rare.

L. Nasturtii, *Fabr.*, *Steph.* In grass, by sweeping.

L. luridus, *Oliv.*, *Steph.* L. castaneus, brunneus, nigricans, *Steph* Occasional.

L. thoracicus, *Kirby*, *Steph.* L. fuscicollis, dimidiatus, atricornis, *Steph.* Meadows, by sweeping.

9. Psylliodes, *Latr.* Macrocnema, *Steph.*

P. Hyoscyami, *Linn.*, *Steph.* Rare.

10. Plectroscelis, *Redt.* Chætocnema, *Steph.*

P. Sahlbergi, *Gyll.*, *Steph.* In moss; common.

P. aridella, *Payk.*, *Steph.* Hedges; occasional.

11. Dibolia, *Latr.*, *Steph.*

D. Cynoglossi, *E. H.*, *Steph.* One specimen found in moss.

12. Sphæroderma, *Steph.*

S. testacea, *Panz.*, *Steph.* Marshy places, by sweeping; abundant.

S. Cardui, *Gyll.*, *Steph.* On thistles in waste places.

3. Fam. CASSIDIDÆ, *Leach.*

1. Cassida, *Linn.*, *Steph.*

C. equestris, *Fabr.*, *Steph.* C. viridis, *Linn.* On Mentha viridis; not abundant.

C. rubiginosa, *Ill.*, *Steph.* On thistles; rather scarce.

C. Vibex, *Linn.*, *Steph.* On thistles; not common.

C. Salicorniæ, *Curt.*, *Steph.* One specimen from furze, by beating.

C. obsoleta, *Ill.*, *Steph.* Grass in damp places; scarce.

4. Fam. COCCINELLIDÆ, *Latr.*

1. Hippodamia, *Muls.*, *Steph.*

H. 13-punctata, *Linn.*, *Steph.* Common.

2. Anisosticta, *Redt.*, *Steph.*

A. 19-punctata, *Linn.*, *Steph.* Marshy places; rare.

3. Adonia, *Muls.* Hippodamia, *Steph.*

A mutabilis, *Scrib.*, *Steph.* Very common.

4. Adalia, *Muls.*

A. bipunctata, *Linn.* A. dispar, *Steph.* Extremely common.

5. Bulæa, *Muls.*

B. pallida, *Muls.* Rare.

6. Coccinella, *Muls.*, *Steph.*

C. variabilis, *Ill.*, *Steph.* Abundant.

C. 11-punctata, *Linn.*, *Steph.* Rather frequent.

C. 7-punctata, *Linn.*, *Steph.* Very common.

7. Anatis, *Muls.* Coccinella, *Steph.*

A. ocellata, *Linn.*, *Steph.* One specimen from an elm at Alverstoke.

8. Halyzia, *Muls.* Coccinella, *Steph.*

H. 17-guttata, *Linn.*, *Steph.* One specimen taken.

9. Thea, *Muls.* Coccinella, *Steph.*

T. 22-punctata, *Linn.*, *Steph.* Not common.

10. Micraspis, *Redt.*, *Steph.*

M. 12-punctata, *Linn.*, *Steph.* Grassy banks; abundant.

11. Chilocorus, *Leach*, *Steph.*
C. renipustulatus, *Scrib.*, *Steph.* On blackthorn when in flower.
C. bipustulatus, *Linn.*, *Steph.* Furze, by beating.

12. Scymnus, *Kug.*, *Steph.*
S. bipustulatus, *Motsch.*, *Steph.* Roots of grass in marshy places.

13. Rhizobius, *Steph.*
P. litura, *Fabr.*, *Steph.* Moss and roots of grass.

14. Coccidula, *Kug.* Cacicula, *Steph.*
C. scutellata, *Herbst*, *Steph.* On rushes in marshy places.
C. rufa, *Herbst.* C. pectoralis, *Steph.* Occasional.

5. Fam. LATHRIDIIDÆ, *Schaum.*

1. Corticaria, *Marsh.*, *Steph.*
C. gibbosa, *Herbst*, *Steph.* Under bark; not rare.
C. transversalis, *Schüp.*, *Steph.* Under bark; not rare.

2. Lathridius, *Ill.*, *Steph.*
L. lardarius, *Deg.*, *Steph.* In *débris.*
L. angusticollis, *Humm.*, *Steph.* Hedges; occasional.
L. transversus, *Oliv.*, *Steph.* Occasional.

3. Monotoma, *Herbst*, *Steph.*
M. picipes, *Payk.*, *Steph.* Not uncommon.

Addenda.

Amara lucida, *Deg.* A. erythropa, A. infima, *Steph.* Occasional.

Bembidium biguttatum, *Fabr.* B. fuscipes, B. subfenestratum, *Steph.* Rather frequent.

Cercyon pygmæum, *Ill.* C. conspurcatum, stercorator, erythropum, ruinatum, fuscescens, *Steph.* Occasional.

Typhæa fumata, *Steph.*, *Kirby.* Not frequent.

WM. BALFOUR BAIKIE.

Note on the Flying of Bembidia.—Did any of my brother "insect hunters" observe how freely the Bembidia made use of their wings during the remarkably hot summer of 1857? I most particularly noticed this when in Cumberland, in June. Species that I never saw fly before would, on being disturbed, run at once to the top of a stone, open their wings and away. I lost many from another cause: not wishing to bottle any but the best I gave every individual a separate examination; many escaped by slipping from my fingers, and, taking wing as they fell (after the manner of a Philonthus), were soon out of danger. From this cause I missed a series of the rare prasinum: I had, on a very hot day, hunted some miles of the banks of the Irthing, with poor success, when I came to a large muddy bank, where punctulatum was in plenty, with what I took for tibiale amongst them, but they were so very active that every one escaped before I could make out what species it was. I bottled a few promiscuously; and when I came to set them out at night, I had the mortification to find that only three of prasinum were to be found: one of these, on trying to escape, flew into the water, and I now have him mounted, with the wings protruding. Having to return home next morning, I was unable to do more than hope to be more fortunate another time.—*Thomas John Bold; Angas' Court, Bigg Market, Newcastle-on-Tyne, January* 30, 1858.

Capture of Georyssus pygmæus in Cumberland.—I captured a fine series of Georyssus pygmæus when in Cumberland, in the beginning of June last year: they were running about on the muddy banks of the Irthing, each with its pellet of dried mud on the back. I should very much like to know how they acquire this coating: it can scarcely be the result of accident, for all had it, and it fitted so close that I had them to wash before they could be mounted. Although fitting so close it was of two pieces, and in some cases of three, being divided between the thorax and elytra in all, as well as between the head and thorax in some. It is very interesting to watch the little creature tottering about with its load, which does not appear to impede its motions at all; and it really requires sharp eyes to detect so well-concealed a creature, of which all that can be seen are the tips of the antennæ and legs.—*Id.; February* 2, 1858.

Læmophlæus Clematidis.—Perceiving (Zool. 5929) that Mr. J. S. Baly insinuates that I have claimed the discovery of this insect, I beg to state that its capture was recorded by me, at his request, on the 6th of July, 1857, at the Meeting of the Entomological Society, and that, in the published Proceedings of that Meeting, the following sentence concludes the paragraph relating to it: "This species was first taken by Mr. J. S. Baly, and subsequently by myself." In the 'Annual' List I merely cited it as having been registered during the year, and referred the reader to the 'Proceedings' for the original notice. What more Mr. Baly would exact for the insignificant share he had in the addition of this species to the British Catalogue I know not: with equal justice might it be asserted that I had set myself up as the discoverer of the whole of the eighty-four species enumerated in the List. But the true incentive to Mr. Baly's communication is probably to be found in his closing remarks. His strictures on the introductory portions of my ants'-nest article in the 'Annual,' emanating as they do from an active participator in proceedings which he does not attempt to justify, I leave to the appreciation of an unbiassed public.—*Edward W. Janson; 2, Alma Road, Upper Holloway, February* 2, 1858.

Notes on the British Species of Blaps. By T. J. Bold, Esq.

It will, without doubt, surprise many of our collectors of Coleoptera to be told that neither of our common species of Blaps is the mortisaga described by Linneus: such however is the case; and although Gyllenhal most carefully described it in 1810, yet subsequent authors have so bungled the matter that the synonyms of mortisaga, and our other two species (Chevrolatii and fatidica), are but a tissue of confusion.

Having now before me native examples of the true mortisaga, I will endeavour to point out distinctive characters for it and its congeners. The synonyms are part of those given in Mulsant's Coleop. de France, Latigènes.

1. Blaps gigas, *Linn.; Steph. Illust., Mand.* v. 23; *Mulsant, Coleop. de France, Latigènes,* 109, 1.

The bulk of this rare insect will lead to its immediate recognition. I have not seen a British specimen.

2. B. mortisaga, *Linn.; Gyll. Ins. Suec.* ii. 595, 1; *Mulsant, Coleop. de France, Latigènes,* 117.
Tenebrio mortisagus, *Linn. Syst. Nat.* ii. 676, 15; *Faun. Suec.* 822.

Cylindrical, depressed, black: head large, finely punctured, labrum slightly emarginate, ciliated with fulvous hair: clypeus without a median line: thorax convex, finely and distantly punctured; obsoletely canaliculate; subquadrate, strongly margined, dilated and rounded anteriorly; narrowed behind; hinder angles acute, and having an oblique impressed fovea on each side behind: elytra depressed, finely but distantly punctured; very little broader at the base than the thorax; sides scarcely dilated, greatest width before the middle, attenuated behind, apical processes much developed. Length 9—11 lin.

Male.—Opaque; thorax much dilated anteriorly; elytra narrow, acuminated behind, with the apical processes elongate; a tuft of reddish hair between the first and second segments of the abdomen beneath: the legs somewhat longer in proportion than in the female, and with the hinder tibiæ slightly bent.

Female.—More glossy and less opaque than the male.

The cylindrical depressed form, dilated thorax and attenuated elytra will separate this species, at the first glance, from the two following.

Mortisaga appears to be exclusively a northern species: my specimens, two males and two females, were taken near Elgin, in Morayshire.

3. B. Chevrolatii, *Solier; Mulsant, Coleop. de France, Latigènes,* 119, 3.
   Blaps mortisaga, *Marsh. Ent. Brit.* i. 479, 1; *Steph. Illust. Mand.* v. 23, 2; *Id. Manual,* 326, 2558; *Westw. Mod. Class. Ins.* i. 319. fig. 39, 7.
   Blaps obtusa, *Sturm, Deutsch. Faun.* ii. 206, 4, pl. 44.

This species, the B. mortisaga of British collections, may easily be known by its small subquadrate depressed thorax, which has the disk more or less uneven, and which gives it a foveolated appearance in most specimens: the elytra are greatly dilated, widest at about two-thirds their length;* convex above, almost gibbous behind, and with the apical processes very short: when viewed in certain lights the elytra appear slightly ribbed.

Male.—More elongate, thorax proportionately wider, elytra not so gibbous, and legs longer than in the female.

Mulsant appears to be of opinion that these narrow individuals are females; but I think that the dilation of the thorax, narrowing of the elytra and elongation of the legs are indicative of the male sex in this genus.

Common everywhere. I found it very abundant in September, 1857, at Tain, Ross-shire.

4. B. fatidica, *Sturm, Deutsch. Faun.* ii. 205, pl. 45; *Spry & Shuck.* 48, pl. 57, fig. 1; *Mulsant, Coleop. de France, Latigènes,* 121, 4.
   Blaps obtusa, *Curtis, Brit. Ent.* pl. 148; *Steph. Illust. Mand.* v. 23, 2; *Id. Manual,* 326, 2559; *Samouel's Ent. Cal.* 20, 1.

The very broad thick form and short legs of this insect will at once lead to its identification. Mulsant remarks that it is a more southern species than Chevrolatii, being found in the middle and South of France. Stephens and Curtis represent it as not uncommon in the southern portions of England. It has not yet been detected in our district.

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* Mr. Westwood's figure, cited above, is a very correct outline of the female of this species.

THOMAS JOHN BOLD.

Angas' Court, Bigg Market, Newcastle-on-Tyne,
January 23, 1858.

Are there two Species of Priapulus allied to caudatus?—Will any of the numerous readers of the 'Zoologist' inform me, through its pages, if there are more than one species of the tailed Priapulus found in the British seas? There is only one figured and described in Forbes, I think. Is there any other published description? My reason for asking is simply this,—that it strikes me very forcibly that if we have not three distinct species here, we have at least two. But I may be wrong, as all the specimens I have seen have been from the stomachs of fishes, so that the difference may only be accidental, and not real as is supposed. Any information on the subject will greatly oblige.—*Thomas Edward; Banff, February* 8, 1858.

Serpula contortuplicata. — For some weeks past I have observed a curious malformation (?) in one of these very interesting worms in my aquarium. I have in a former number of the 'Zoologist' noticed the fact of the total loss of the trumpet-shaped operculum, which in several instances has fallen off, apparently without any reason, and to all appearance in a healthy condition. In the present case there is a redundancy, as the specimen I now allude to has double opercula, both perfectly developed and joined together near the base. I should mention that these opercula are each of them decidedly smaller than the single one formerly occupying their place. May I ask whether this has been noticed before, or whether it is a common occurrence? — *C. R. Lighton; Ellastone, Ashbourne.*

Occurrence of the Peregrine Falcon in Kent. — A male specimen of this bird was shot on the 9th of December, 1856, in the parish of Halling, near Rochester, and is now in my possession.—*C. W. Shepherd; Trotterscliffe, Kent.*

Occurrence of the Buzzard at West Harling. — A fine female of the common buzzard was shot here and sent to me on the 1st of the present month; it was in high condition; the body was covered with fat, as well as being very fat internally. It is a bird seldom met with in this district. I believe the roughlegged buzzard is not considered so scarce, as a winter seldom passes but one or two are seen or obtained. — *Thomas Dix; West Harling, Norfolk, February* 10, 1858.

Occurrence of the Roller in Flintshire. — I am glad to be able to record in the 'Zoologist' the occurrence of this rare visitor to Britain. The specimen, which appears to be a young bird, was killed by Captain E. H. Mostyn, of Saethelwyld, about a mile from the town of Holywell, whilst sitting on some railings in front of his house. Two specimens of the great snipe (*Scolopax major*) were killed this winter by a gentleman in a field near Chester, on different days. — *T. Mather; Holywell, Flintshire, January* 22, 1858.

Winter Food of the Ring Dove and Stock Dove.—"During autumn and winter ring doves feed on acorns, beech-nuts, berries and turnip leaves."—Yarrell, ii. 252. "The food of the stock dove is very similar to that of the ring dove, viz. young green leaves, peas, grain, seeds, berries, turnip leaves, beech-nuts, acorns, &c., according to the season of the year."—Yarrell, ii. 256. I have, on more than one occasion during the present month, shot several wild pigeons, including both species named in the above extracts; and, once or twice, birds of both species have fallen to the same shot. On going to pick them up, a very conspicuous dissimilarity as to their diet, during the day just closing as they fell, claimed my attention. The ring doves, without an exception, were crammed with holly berries,—so much so that, either from the shock of the fall or their dying struggles, the holly berries were disgorged in such quantities as to surprise me greatly. One bird shot dead on the wing, and falling some distance, and with proportionate impulse, must have ejected fully half a pint. The spot of ground it fell on, as seen from a little distance, was coloured red with them. One of the stock doves, however, while struggling in my hand, ejected some much smaller and less conspicuous substances, and I was led to look more closely and ascertain what its food had been: it seemed to have consisted exclusively of the seeds of the charlock,—here called 'runch,' and 'ketlock' in the neighbourhood of York,—with which troublesome weed more farms than one, not far from the plantation in which I shot the birds in question, are sadly infested. Nor in any one case have I found the stock dove had partaken of the holly berries which at present seem to form the staple food of large flocks of the ring dove. There is an ample supply in this neighbourhood: the trees—for they are really trees, with trunks from one foot to two or two and a half feet in diameter—are, in one or two places, very numerous, and even still, notwithstanding the long-continued feasting of flocks of wild pigeons and fieldfares, and great numbers of redwings, thrushes and blackbirds, are in many cases quite red with their crop of coral fruit. So much are the ring doves' crops distended by the quantity of holly berries they have eaten, that, as they fly over or past, I have been forcibly reminded, by the protuberance of their breast, of the peculiar shape which gives its name to the pouter pigeon. One I shot a day or two since, burst its crop in falling, and there was, for the instant, a scarlet shower flashing all round it as the berries rebounded from the earth and fell back again. I observe that the stock dove usually comes in to roost before the ring dove. When shot together, it was usually after they had been disturbed by previous shots.—*J. C. Atkinson; Danby, Grosmont, York, January* 25, 1858.

Contributions towards a Biography of the Partridge.

By the Rev. J. C. Atkinson, M.A.

"Of a bird so universally known" as the partridge, "little that is new can be said; with its appearance and its habits almost all are familiar."—Yarrell, ii. 334. This statement is so generally true that, even if the disposition existed, there would be but little opportunity for disputing it. Still, from time to time, I have observed some slight peculiarities in the habits of the partridge which I have not seen noticed in any biography of that bird; and besides, I have also seen some statements and theories advanced in connexion with some of its habits, or supposed powers, which I thought were inconsistent with facts I had noticed, and have often been able to verify. Moreover, from the locality of my more recent and somewhat persevering observations, I have been almost induced to think that an account of those observations might not be so altogether every-day as to be unacceptable to the editor and readers of the 'Zoologist.' On these grounds, then, I rest my apology for the present paper.

The district I am now living in is one of deep narrow valleys,—in the main fertile and well cultivated,—between ridges of moorland reaching an altitude of 900 to 1400 feet above the sea. The cultivated part of my own immediate portion of this district may be not unaptly figured by supposing a star-fish of five arms, not very regular in shape or size, and two of them drawn together for one-third of their length towards their points, and leaving an oval space between them towards their base. The whole area of this star-fish and its arms may be some 7000 or 8000 acres, lying in the midst of twice that amount of moorland. While, then, the productive corn land in the valleys—much of it being of that quality which I have heard described as "good partridge land," that is, very friable and dry—is highly favorable to the breed of partridges, the close vicinity of the high ground, with its thick coverts of ling and bracken, adds yet further to its recommendations as a breeding and dwelling place for these birds.

The partridge pairs very early. Notwithstanding the intensely bitter cold and frost of the early part of this month, I have already (Feb. 2) observed several instances in which the courtship was evidently over, and the union effected.* Nor have I ever observed, when once the pairing has taken place, that the individuals so paired ever so far, apparently, annul the bond as to return to the life-in-common of the covey; a circumstance which may repeatedly be noticed with both the grouse and the golden plover, under the influence of severe weather.

The nest appears to be almost invariably formed on the enclosed land; I mean as distinguished from the moor or common. This year I heard of one well-authenticated instance of the nest being on the moor, but still at no great distance from the enclosures; and I believe such instances to be rare: indeed it would not be very convenient to the old birds to have to convey their young just-hatched brood any great distance to their food, especially over or through such obstacles as are presented by the moor. But no long space elapses before the infant covey is conducted, at least occasionally, and principally during the height of the day, to the little-disturbed quiet and shelter of some bracken-bed on "the banks"* in the vicinity of their birth-place. This year, in July, I saw a covey, the young birds not so large as thrushes, in a spot at least half a mile from the nearest corn-field. Still, as a rule, while the corn remains standing, and the potato-fields furnish the strong covert they do before the first sharpish frost, the coveys do not habitually resort to the moor. When disturbed they will, even before September is out, quit the shelter of the potatoes and rape, and go to the banks,—often rising very wild to do so,—and thence on to the open moor if again disturbed. Later on, when the potatoes are gathered and only the turnips are left, the preference for the moor is so strong that turnip-fields, which in a level country would have held two or three of the coveys bred in the adjacent corn or hay-fields, may be beaten day after day without holding a bird, except under the condition that they have been by some means driven in.† Later yet, or from the end of October throughout the winter, if the weather continues open and mild, some coveys seem to take almost entirely to the moor, and wander to a great distance in all directions. Their droppings may be observed on the smooth short sward, on the sides of the moor roads and paths, and wherever such sward is found, to a mile and more from their home. If the sportsman finds them now it is "more by luck than by wit."

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* Our gamekeeper yesterday, February 4, told me he had noticed the same circumstance.

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* Bank or Banks is a word locally applied to the steep side of a hill, and even to the road up the said side. In the instance in which I apply it, it is the space which intervenes between the line of enclosures and the general or lower level of the moors, giving a surface with much the same "gradient" as a very sharp roof, and of fully 200 feet in absolute altitude. This space is clothed with coarse herbage, "breckons," and, here and there, where a spring makes a boggy place, with beds of rushes and sedges, here called "sceaves" or "clock-sceaves." Where these banks on either side one of the valleys or "dales" begin to approach each other at its termination, they break up into separate eminences or hills, of varying height and dimensions. These are called "the hills," as the termination of the dale is called its head. On many of these banks and hills the juniper grows, and sometimes to an enormous size. One of these bushes, now growing in Danby Head, is hollow in the centre from age, but is nearly 20 feet in diameter and 7 or 8 feet high.

† On September 9th I bagged nine brace in about four hours' shooting: at least six brace were shot on the banks. On October 9th I bagged 6½ brace in about two hours: every bird was shot on the moor; in fact I only had two shots on the land, and in that case the birds had been driven from the moor into the turnips, where I found them.

In three different directions I knew, last season, of the existence of large packs, rather than coveys, of partridges, numbering not less than from twenty to twenty-five brace in each case. From circumstances I had only been able to visit their several haunts once or twice before the middle of October. One of these packs I have never been able to find since; another I never saw again till last Monday (February 1), when the severe weather had driven it down upon the land; and the third I found accidentally one day, and it led me nearly a mile on to the open moor in pursuit. If, however, snow falls to any extent they forsake the moor, and, however hard pressed by the shooter, manifest very little inclination to resort thither for safety.

From time to time one hears of very large coveys: during the past season I have heard of and seen more than one such. One, numbering forty birds, was named to me before the season commenced: a few shots were fired at it on September 7th, which reduced its number to thirty-seven. At this number it stood for some weeks, when, on one or two occasions, it was somewhat reduced: however, as lately as February 2nd, it still mustered twenty-eight members. I have seen two or three others of from twenty to twenty-five. I believe in the latter cases all were the progeny of one pair of old birds, and included them of course; in the former, and all similar ones, that two hens laid in the same nest (See Yarrell, ii. 335). That this does take place, from time to time, I am in a position to prove, from a circumstance communicated to me last autumn. A partridge's nest was found in a field, in Fingringhoe, in Essex, containing a great number of eggs; but one moiety consisted of the eggs of the redlegged partridge, the rest of those of the common English bird.

In general, after the great tameness which characterizes the partridge early in the season is worn off, it is much more easy to approach single birds, or groups of two or three, than larger numbers; but their habits, in respect of what the sportsman terms their "wildness," are very variable and very unaccountable. I have known fourteen out of seventeen composing a covey killed in detail, the other three being left unmolested; and I have seen bird after bird get up, when once the gun had been fired or the whirr of one or more of their fellows' wings been heard, without allowing the sportsman another shot. Sometimes I have seen two or three rise very wild once or twice in succession, and the third time, with no better cover or concealment than before, lie till the shooter almost walked upon them. One day the covey will lie till you are in the midst of them; the next, rise from the same covert as soon as you are seen entering the field. No doubt there is a reason for this variability, but I cannot suggest one that is at all satisfactory to myself.

They seem to resort to their feeding-ground at daybreak, and they remain there until about 9 to 10 o'clock. They then, with some calling, betake themselves to the turnip-field, or the bank, or some pasture, especially if it have a dry sunny bank in it, or possibly to a bed of rushes, if there be one in any field near. Here they remain till about 3 o'clock in the afternoon, when they begin to move, often on foot, and calling a good deal. Sometimes their journey on foot is so far continued that they have but a short flight to make to their feeding-ground,—little more, possibly, than over a fence, and a few yards into the field selected. They seem to be very playful when on the move, either to or from their food, and with no suspicion of possible danger: little sparrings and rivalries as to which shall be foremost in the walk may be observed by the well-placed spectator, and all accompanied with a low continued sort of clucking, which cannot be heard very far by human ears. I have very commonly observed the use of this species of call by a wounded bird. Occasionally the louder well-known call is used; but this clucking is very common. Twice in the past season I winged a bird with each barrel: in both cases the birds, though falling far apart, had drawn together; and in one of the cases, the birds having fallen 50 or 60 yards apart, I heard this calling quite distinctly, and eventually, after charging, found both close together. I have also occasionally seen them, quite contrary to their usual habits when driven to covert, manifest great restlessness, first one and then another, and then perhaps two or three rising, quite undisturbed by any near approach of dog or man, taking very short flights and then dropping again. Once I noticed this when some fifteen brace of birds were scattered on the bank, and the whole space seemed alive with them, from their restless and incessant motions, accompanied as it all was by continual callings. I have seen, but rarely, a single bird, from among what was proved in a few moments to be a considerable covey, rise above the covert, and drop again as suddenly as it rose, and in the same place. It is no unusual thing for a bird, or more, leaving the bulk of the covey, to rise and go quite away. When this occurs, it may often be accounted for on the ground of the absence of that particular bird on whose movements and signals the covey depends for the regulation of its general conduct. In the former case, whenever I have remarked it, the covey had not been previously flushed; in the latter, as far as my memory serves me, it was most generally after a previous disturbance and flight of the covey, and very probably after the death, at the previous rise, of the old bird or birds. They usually rise first (giving a signal just as they rise), and, from the fact of being first on the wing, are most frequently first fired at: indeed in sporting books young shooters are told that if they can succeed in killing the old bird or birds at first, they will find it much easier to get shots at the remainder of the covey; and I have no doubt that this well-founded piece of advice owes its reason to the circumstance that the covey, having lost its director, whom I believe originally to be the hen bird, is thenceforward, during that day at least, without government or organization or concert; the young birds, inexperienced and terrified, have no resource in themselves, and waiting, after a purposeless run of a few yards, for the accustomed signal for flight, lie till they are trodden on or perhaps caught by the dog or its master's hand. In fact, I believe that the whole movements of the covey are directed mainly by voice. I have heard the low clucking of the parent bird, as she was moving about with her chicks in the standing corn, continued, with short intermissions, as long as I remained within hearing; I have heard the louder clucking, above noticed, when they are on the move to or from their feeding-ground, or when wounded; I have heard a low purring sound when I have come upon a covey at bask, or at rest during the midday hours, and before they had taken alarm from my presence; and all this quite independently of the various calls which the most inattentive observer is acquainted with. In few words, they could not act with such concert as they do without very intelligible signals and a recognised authority to give them; and it is quite worth notice that the covey out of which you kill both old birds, and some of the scattered, disorganized young members, to day, will be in the course of another day or two reorganized and reofficered,—will rise before your dog as one bird,—and behave just as if it were still under the guidance of the director or directors originally given by Nature.

To pass to another subject. A few months since there was a good deal of ink shed, in a certain sporting Weekly, on the supposed power of retention of scent alleged to be possessed by some game birds, and especially by a partridge assumed and maintained by some to be almost more than a variety of the common partridge. The arguments in favour of both assumptions seemed to me most lame and inconclusive. The supposed variety of partridge, described as exclusively frequenting or inhabiting the moors (if I remember right, particularly in some parts of Ireland), was said to be distinguished partly by this circumstance, and partly by its less size and darker plumage as compared with the common bird. Here, I am certain, with every opportunity and inducement of locality, of all the hundreds of partridges which frequent the moor at times, not one in a hundred is bred on the moor, and not one at all inhabits the moor to the exclusion of the lowlands. Hatched and nurtured in the corn-fields, though they may, in the case of a covey or two here and there, take to the moor for days, or possibly weeks together in such a mild season as the past has been, yet in snow and frost they return to the fields, and when paired are to be met with, as the rule, in the fields and not on the moor. Then as to size and plumage: he must be a most unobservant person who does not note the differences in size and shade perceptible between individuals of almost every species of birds, according to sex, age and other circumstances. In the grouse, for instance, they are most conspicuous; and one day last week I shot two snipes in succession from the same wet place: one was a fine bird, above the average in weight; the other so small I could scarcely believe it was not a jack as I stooped to pick it up. Again, I noticed one partridge in a particular covey, on two several days, so perceptibly darker than the rest that but for flight, &c., I might have been pardoned for taking it, for a moment or two, for a grouse. But to return to size: I met a farmer one day late in the season; he said to me, "I told you there was a covey of thirteen very small birds, scarcely able to fly, when you were over my farm in September; I have seen them often since, in such and such fields." A week or two after—I believe about the 19th of December—I was over his fields again, and killed a bird out of a good covey. On picking it up I was struck by its lightness and smallness; it was, however, very plump and in full plumage. I followed the covey, and succeeded in bagging three more from it, one of which was an old bird. All of the three young ones were alike in size and weight, and certainly less than the old one by one-third. On a subsequent occasion I shot most of the others; and the rule held throughout. Most of these small birds, moreover, appeared darker in colour than the usual run of partridges. But the difference in size certainly could be accounted for in only one way, viz., the very late period at which they had been hatched; and I have observed the same result of late hatching on a former occasion, nor is it difficult to be accounted for.

As to the alleged suppression or retention of scent, I think the supposed power as much a myth as the supposed variety * of partridge. No observant person can have had much to do with the pursuit of our English game without having, again and again, found himself called on to notice the strangest circumstances connected with scent: it varies inconceivably in the same field, on the same day, nay in the same hour. Sometimes in the case of a wounded bird the scent is so strong that, instead of drawing steadily on, the dog points perpetually, as if the bird were just ahead of him; at other times he can scarcely carry it on at all, losing it again and again, only recovering it after repeated casts, and very likely losing it entirely in the end. A few weeks since I winged a bird on the moor; the ling was not high: my dog took up the scent, which seemed very strong, immediately; he "footed" the bird for 150 or 200 yards, step by step, turn by turn; and then all at once the trail was lost. Though one of the most persevering dogs I ever saw in pursuit of a wounded bird, and with a most excellent nose, he was quite unable to take up the scent again, though working every yard of ground for a large space round: the fact was, as I thought, that having worked the scent very slowly, pointing repeatedly, as if believing the bird to be in the next bunch of ling, the partridge had gained time, and, on getting out of the ling on to a bare place,—left bare by a recent fire,—on which, from its dryness and absence of vegetation, the scent would scarcely lie at all, even at first, and had entirely escaped before the dog came up, had then gone off with unimpeded speed, and by the time he came up literally "left no trace behind." And yet this might have served a retentionist with a good "case in point." Again, I have seen dogs in many cases run over a dead bird, sometimes almost or quite touching it, and give no token of noticing the scent. I have hunted a dog for ten minutes or more over a spot of a few square yards, on which I knew a dead bird lay, and have given it up as lost. The next shot I fire brings down a winged bird, which runs through a thick bed of broom, breast high; thence through a hole in a dry stone wall, into a plantation of young larches, with a very dense undergrowth of grass and weeds; and at last into the entrance of a drain: the dog hunts it unfalteringly, and I bag it in due time. I return over the ground on which I had seen

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* Other circumstances connected with the assumed variety of partridges, even more mythical than those noticed in the text, I pass over as scarcely worthy serious comment; such, for instance, as that there is no increase, or the contrary, in their numbers from year to year,—where there is a covey this year there is one next, and no more; that almost all the birds in any covey are males; and so on.

the bird, looked upon as lost, fall, and while speaking to a farmer find myself almost treading on it, my dog being just as far from smelling it now as before. Yet no one can contend that the dead bird suppresses its scent. The fact was this bird had fallen into a hollow, so that, had I not been occupied with the second barrel, I could not have actually seen it to the ground; and in that hollow there were probably certain forces — analogous to those producing eddies in water, and whirlwinds, small or great, in the air—acting on the currents in the atmosphere, which conveyed the scent upwards, instead of horizontally or nearly so; while the bird, having fallen dead, had left no scent on the earth, except just the few inches it covered as it lay.

But the great objection to the theory of suppression, in my mind, is derived from another description of facts. Partridges, to speak of them only, are affirmed to be possessed of a power which, when exercised, baffles the sportsman's best dogs and his attendant's most accurate marking; but nineteen partridges out of twenty, take the season through, most unquestionably do not avail themselves of it. No doubt every sportsman is often aware he may have left a bird behind him, but how many has he found for one he believes he has left? The succession of points got in September, in a piece of good turnips or potatoes in a well-stocked country, or later still in the coverts afforded by our banks, in a good partridge year, when the young inexperienced partridges are most terrified,—in other words, in circumstances calling for, and, by the theorists, supposed to originate the exercise of the power of suppression,—is a sufficient reply to any one who has no theory to maintain. Surely if a pursued and alarmed bird could suppress its scent, it would be done by nineteen pursued and alarmed birds out of twenty, instead of by the solitary unit in twenty. Every one who has ever noticed the singular freaks with which colour spreads itself in water, darkening this place, leaving that quite untinged, can easily imagine how there must be analogous freaks, more strange still, in a fluid so much more subtle than water, and with a commingling matter so infinitely less tangible and appreciable than colouring matter. On the whole I must say that it does appear to me a most hasty generalization, from very inadequate facts, to assume that a partridge, or other game bird, can suppress its scent, because in a few isolated instances—*very* few, comparatively—a marked bird cannot be found by the pointer or trod up by the sportsman.

J. C. Atkinson.

February 5, 1858.

Breeding of the Bustard (Otis tarda) *near Leipzic.*

By Henry Smurthwaite, Esq.

I had hoped, during the course of last summer, to obtain many particulars concerning the habits of the great bustard during the breeding season,—a want which, from various reasons, has up to this time remained quite unsupplied: residing as I do in the very heart of the locality chosen by these interesting birds as their nursery, I imagined that I should have had an opportunity of studying their nidification, which has not often been afforded to a naturalist; various circumstances, however, prevented me from investigating in person, and for the somewhat meagre particulars which I send I am indebted to the kindness of a friend, who, during the breeding season of 1857, himself several times discovered the nest, or rather the eggs, of Otis tarda.

"Der Trappe," as our German friends call it, seems to have fixed upon the immense level plains between Leipzic and Halle as their favourite resort: they are found, however, in the greatest numbers in the neighbourhood of the latter town. The females, who appear to arrive on the breeding ground considerably later than the males, are deserted by the latter soon after the act of impregnation has taken place; for the great bustard brings with him into Europe the custom of the land he most loves, and indulges in a plurality of wives. The eggs are usually laid about the end of May or beginning of June, but, as the following list shows, there is every reason to suppose that two broods are sometimes hatched in the year, or that in some seasons nidification takes place much earlier and later than in others.

I had employed various persons to procure eggs for me, havir made the necessary arrangements so early as February, 1857, and r ceived specimens as follows, the date, be it understood, indicating in every instance, the day on which the eggs were taken.

April 28. Two specimens, freshly laid.

May 20. Two specimens, freshly laid.

May 29. Three specimens from two nests, the single egg being addled, the others quite fresh.

June 3. One specimen. The nest from which it was taken contained three eggs, all fresh.

June 23. One specimen, quite fresh. This egg was taken within two miles of Leipzic.

July 1. One specimen, quite fresh.

August 12. One specimen, also quite newly laid.

Those brought me on the 28th of April are smaller than any of the rest, with the exception of that which was addled. The eggs in my possession differ very considerably both in the ground-colour and in the number and shade of the secondary markings, the spots on the two brought to me in April being much deeper in hue and more clearly developed than in any other specimens which I have examined. The finding of the eggs was in most instances, as it were, accidental, for the parties in search of them were compelled to limit their efforts to walking over the ground which they knew by experience was likely to reward them, and keeping a sharp look out for the *eggs*, for in scarcely any instance is a nest formed, and this at most consists of a little straw, or occasionally a few feathers, carelessly laid together in a slight depression of the earth. On several occasions, however, the object was gained by previously taking a careful survey, with a good telescope, of the ground about to be tried: by this means, more than once, the head and neck of the hen bird were observed as she sat on her eggs; and although, long before the party could arrive at the spot thus discovered, the bird took the alarm and escaped, yet the plan was found much better than could have been expected.

The great bustard is, in the district I have above mentioned, by no means a scarce bird, although, from the few opportunities which occur of getting a view of it, it is considered to be rarer than is really the case. Had I been able last year to have aided in person in the search, I have no doubt that the number of eggs obtained might have been more than doubled: I heard of numerous specimens being taken by persons who, like myself, are enthusiastic egg-collectors.

The number of eggs laid is either one, two or three; the second number most usually, and one more frequently than three.

The young are enabled to run with speed soon after their exclusion from the egg, and it is at this time that persons desirous of obtaining the birds for their aviaries or poultry yards endeavour to secure them. If taken whilst chicks their domestication is a matter of very little difficulty: they feed greedily on chopped meat, and become so tame as to answer their owner's call and feed readily from his hand,—the more singular from the fact of their being in the wild state the shyest of all birds: the attempt to hatch and rear them from the egg is at best a troublesome and disappointing undertaking, as scarcely one in twelve is successfully brought up.

A word, before I conclude, on the much vexed question of the gular pouch. In compliance with the wishes of an English gentleman who felt great interest in the subject, I made many inquiries amongst persons likely to be well informed, two of them in fact professional taxidermists, and the almost universal opinion was that the pouch invariably exists in the adult male bustard, but never in the female of any age: the matter, I think, can only be finally decided when some good anatomist examines an extensive series of old males; and as these are at all times difficult to procure, the question must, I fear, remain unsolved.

HENRY SMURTHWAITE.

Leipzic, Rossplatz,
February 8, 1858.

Occurrence of Tengmalm's Owl (Strix Tengmalmi) *in Sussex.*—On the 27th of March, 1857, a labouring man, of the name of Day, saw a bird fly into a rabbits' burrow, in Holmbush Park, near Horsham. He dug the bird out and sold it, alive, to a bird-stuffer, of the name of Weller, in Roughy Street. This bird was afterwards shown to me, and it proved to be Strix Tengmalmi. The sex was unfortunately not ascertained. It is now in my possession.—*W. Borrer, jun.; Cowfold, Sussex, February* 15, 1858.

Occurrence of the Barheaded Goose (Anser Indica) *near Chester.*—I have been informed, by Capt. E. H. Mostyn, that a specimen of the barheaded goose, a native of India, was shot in the spring of 1848, during a hard frost, whilst in company with a flock of bernicle geese, by — Congreve, Esq., of Berton Hall, Cheshire, on the shore of the Dee, about eight miles below Chester. The specimen is still in his possession: it had probably escaped from some aviary. The following is a description of the bird. Length about 27 or 28 inches: bill yellow, with a reddish tinge at the base; head, upper part of neck and a stroke down each side of the neck white; a bar of black at the back of the head reaching to each eye; below this a second bar of black, not extending so far; rest of the neck dark gray; the feathers of the belly above the legs and thighs brown; the whole of the rest of the plumage French gray, darkest on the wings, the primary feathers of which are dark gray or black; tail tipped with white; legs orange-red.—*T. Mather; Glyn Abbot, Holywell, Flintshire, February* 9, 1858.

Black Swans nesting at Carshalton.—My black swans hatched off a brood of eight young ones on Friday last, all strong and healthy. This is the fifth time they have bred at this season of the year. Their nest was entirely exposed to the weather, and the most intense cold does not affect them.—*S. Gurney; Carshalton, February* 1, 1858.

Occurrence of the Fulmar Petrel (Procellaria glacialis) *at Brighton.*—On the 30th of January, 1858, a specimen of Procellaria glacialis was picked up, dead, on the beach, at Black Rock, Brighton. It was quite fresh, and appeared to have been recently shot, having fresh blood about the neck. The windpipe was divided into a double tube for about half its length upward from the divarication of the bronchial tubes. I do not know whether this is the case in all the petrels.—*W. Borrer, jun.; Cowfold, Sussex, February* 15, 1858.

Another Peep at the Sea-Serpent.—I beg to enclose you a copy of an extract from the meteorological journal kept by me on board the ship 'Castilian,' on a voyage from Bombay to Liverpool. I have sent the original to the board of Trade, for whom the observations have been made during my last voyage. I am glad to confirm a statement made by the Commander of Her Majesty's ship 'Dædalus,' some years ago, as to the existence of such an animal as that described by him.—*G. H. Harrington; 14 and 14½, South Castle Street, Liverpool, February* 2, 1858.

"*Copy of an Extract from the Board of Trade Meteorological Journal, kept by Capt. Harrington, of the ship* '*Castilian,*' *from Bombay for Liverpool.*

"Ship Castilian, Dec. 12, 1857, north-east end of St. Helena,
bearing north-west, distance 10 miles.

"At 6 30 p.m., strong breezes and cloudy, ship sailing about 12 miles per hour. While myself and officers were standing on the lee side of the poop, looking towards the island, we were startled by the sight of a huge marine animal which reared its head out of the water within 20 yards of the ship, when it suddenly disappeared for about half a minute and then made its appearance in the same manner again, showing us distinctly its neck and head about 10 or 12 feet out of the water. Its head was shaped like a long nun buoy, and I suppose the diameter to have been seven or eight feet in the largest part, with a kind of scroll, or tuft of loose skin, encircling it about two feet from the top; the water was discoloured for several hundred feet from its head, so much so that on its first appearance my impression was that the ship was in broken water, produced, as I supposed, by some volcanic agency since the last time I passed the island, but the second appearance completely dispelled those fears, and assured us that it was a monster of extraordinary length, which appeared to be moving slowly towards the land. The ship was going too fast to enable us to reach the masthead in time to form a correct estimate of its extreme length, but from what we saw from the deck we conclude that it must have been over 200 feet long. The boatswain and several of the crew who observed it from the topgallant forecastle state that it was more than double the length of the ship, in which case it must have been 500 feet; be that as it may, I am convinced that it belonged to the serpent tribe; it was of a dark colour about the head, and was covered with several white spots. Having a press of canvass on the ship at the time I was unable to round to without risk, and therefore was precluded from getting another sight of this leviathan of the deep.

"George Henry Harrington, Commander.
"William Davies, Chief Officer.
"Edward Wheeler, Second Officer."

The Sea-Serpent.—In your paper of the 5th inst. is a letter from Captain Harrington, of the ship 'Castilian,' stating his belief that he had seen the great sea-serpent near St. Helena. His confidence is strengthened from the fact of something similar having been seen by Her Majesty's ship 'Dædalus' near the same position. The following circumstance, which occurred on board the ship 'Pekin,' then belonging to Messrs. T. and W. Smith, on her passage from Moulmein, may be of some service respecting this "queer fish." On December 28th, 1848, being then in lat. 26 S., long. 6 E., nearly calm, ship having only steerage way, saw about half a mile on port beam a very extraordinary-looking thing in the water, of considerable length. With the telescope we could plainly discern a huge head and neck, covered with a long shaggy-looking kind of mane, which it kept lifting at intervals out of the water. This was seen by all hands, and declared to be the great sea-serpent. I determined on knowing something about it, and accordingly lowered a boat, in which my chief officer and four men went, taking with them a long small line in case it should be required. I watched them very anxiously, and the monster seemed not to regard their approach. At length they got close to the head. They seemed to hesitate, and then busy themselves with the line, the monster all the time ducking its head, and showing its great length. Presently the boat began pulling towards the ship, the monster following slowly. In about half an hour they got alongside; a tackle was got on the main yard and it was hoisted on board. It appeared somewhat supple when hanging, but so completely covered with snaky-looking barnacles about 18 inches long, that we had it some time on board before it was discovered to be a piece of gigantic sea-weed, 20 feet long and 4 inches diameter, the root end of which appeared when in the water like the head of the animal, and the motion given by the sea caused it to seem alive. In a few days it dried up to a hollow tube, and as it had a rather offensive smell was thrown overboard. I had only been a short time in England when the 'Dædalus' arrived and reported having seen the great sea-serpent,—to the best of my recollection near the same locality, and which I have no doubt was a piece of the same weed. So like a huge living monster did this appear, that had circumstances prevented my sending a boat to it I should certainly have believed I had seen the great sea-snake.—*Frederick Smith; Newcastle-on-Tyne, February* 10, 1858.—*From the 'Times.'*

["The plants of this family (Laminariaceæ) are almost all of large size, and many of them gigantic, greatly exceeding in bulk any other marine vegetables. The Oar-weeds and Tangle of our own coasts have frequently stems six or eight feet long, and fronds expanding from their summits to as great a length; and the Sea-thong (Chorda) often measures forty feet in length. But these dimensions are small, compared with their kindred on the shores of the Pacific Ocean. The Nereocystis, a plant of this family inhabiting the north-western shores of America, has a stem, no thicker than whipcord, but upwards of 300 feet in length, bearing at its apex a huge vesicle, six or seven feet long, shaped like a barrel, and crowned with a tuft of upwards of fifty forked leaves, each from 30 to 40 feet in length. The vesicle, being filled with air, buoys up this immense frond, which lies stretched along the surface of the sea: here the sea-otter has his favorite lair, resting himself upon the vesicle, or hiding among the leaves while he pursues his fishing. The cord-like stem which anchors this floating tree must be of considerable strength; and, accordingly, we find it used as a fishing-line by the natives of the coast."—*Harvey's British Algæ*, p. 27.—Ed.]

Proceedings of Societies.

ZOOLOGICAL SOCIETY.

January 12, 1858.

Mr. Sclater exhibited a small collection of birds lately transmitted by Mr. Thos. Bridges (Corr. Member) from Northern California, accompanied with notes on their localities, habits, &c., by the collector. Two species, both belonging to the family Picidæ (woodpeckers), were pointed out as of great interest: one of these was the elegant Melanerpes albolarvatus, lately described and figured by Mr. Cassin, of Philadelphia, and hitherto unknown in European collections: several specimens of both sexes of this bird were obtained by Mr. Bridges in Trinity Valley, where it is not uncommon in the pine forests. The other Mr. Sclater considered as probably new to science, and he proposed to call it Melanerpes rubrigularis: it was found in the same locality, but is represented as very rare, only one specimen having been procured.

The Secretary read a "Monograph of the Genus Nyctophilus," by Mr. R. F. Tomes. The characters of this genus were first briefly given by Dr. Leach, in a communication to the Linnean Society read in March, 1820, but not published until 1822. In describing the teeth of the lower jaw, Mr. Tomes considered that two errors which have been made respecting their number required correction. Dr. Leach states that the lower incisors are six in number, and M. Temminck, describing afterwards from the same specimen, could only find four. After diligently examining a considerable number of skulls, Mr. Tomes satisfied himself that the account given by Dr. Leach is correct, for in no instance could he discover less than six lower incisors; but in two examples the outer one on each side is wholly hidden by the one next to it, so that, unless the skull be carefully cleared of the investing membranes, it would be extremely difficult to see more than four of these teeth: hence has probably arisen the error. In the course of the paper Mr. Tomes gives descriptions of two new species under the following names,—Nyctophilus Gouldi and N. unicolor.

The Secretary next read a paper by Dr. L. Pfeiffer, containing descriptions of eleven new species of land shells, from the collection of Mr. Cuming. They were characterized under the following names, viz.—Helix Wallacei, Testudo, congener, Purchasi and Fricki, Achatinella (Newcombia) cinnamomea, gemma, sulcata and minnis, Cylindrella eximia and Bulimus Binneyanus.

The Secretary also read a paper by Mr. Hanley, containing descriptions of a new Cyrena from Ceylon, and of new Siphonariæ, and which he named as follows,—Cyrena Tennantii, Siphonaria brunnea, Carbo, parma, exulorum and redimiculum (var.).

Dr. Gray read a paper on a new arrangement of species in the genus Oliva.

Tuesday, *January* 26, 1858.—P. L. SCLATER, Esq., F.L.S., in the Chair.

Dr. Harley made some further observations on the anatomy of a new species of Pentastoma found by him in the lung and air-sac of an Egyptian Cobra, an interesting paper on which was read before the Society in June last.

The Secretary read a notice of a new genus of Uropeltidæ from Ceylon, in the collection of the British Museum, by Dr. Gray. The species was characterized under the name of Mitylia Gerrardi.

The Secretary also read a paper, by the same author, on the bosch-vark (*Potamochærus africanus*) living in the Society's Gardens. Some doubt having been expressed as to the distinctness of the painted pig of the Cameroons from the bosch-vark of the Cape, it was with great pleasure Dr. Gray was enabled to examine a living specimen of the latter, and he is quite convinced that any one who examines the two living animals, as they are placed side by side in the Gardens, cannot fail to be satisfied with the distinctness of the species, independent of any variation that may occur in the ground-colour of the individual.

The Chairman read some notes on a collection of birds received by M. Verreaux, of Paris, from the Rio Napo, in the Republic of Eçuador, and stated that, although several small collections of birds had been already received in Europe from this locality (one of which he had formerly brought before the notice of the Society), the present was larger and of a more interesting nature, embracing no less than 170 species, at least 20 of which appeared to be undescribed. The most noticeable objects were two Tanagers, which seemed not only generically but specifically different from anything hitherto known, and which were characterized as Creurgops verticalis and Euchætes coccineus,—a fine series of Formicariidæ, embracing 33 species, of which several appeared to be undescribed,—and a new form belonging to the peculiar South-American family Pteroptochidæ, for which the name Agathopus micropterus was proposed. The Chairman stated that M. Jules Verreaux had previously examined and labelled the birds of this collection, and that the greater part of the new appellations were adapted from his MS.

The Chairman also called the attention of the Society to a very scarce parrot lately acquired for the Menagerie, and of which only one other specimen was known, formerly living in the Zoological Gardens at Amsterdam, and now in their Museum. This was the Eclectus Cornelia of Prince Bonaparte.

Tuesday, February 9, 1858.—Dr. Gray, F.R.S., V.P., in the Chair.

The Secretary read a paper 'On the Characters of four Species of Bats inhabiting Europe and Asia, and the Description of a new Vespertilio inhabiting Madagascar,' by R. F. Tomes, Esq. After some lengthened remarks on the characters of the following species, viz. Vespertilio emarginatus, *Horsf.*, V. formosa, *Hodgs.*, V. rufo-pictus, *Waterh.*, and V. Pearsonii, *Horsf.*, the paper concluded by describing a new species from Madagascar, which was characterized under the name of Vespertilio madagascariensis.

Mr. Gould exhibited to the meeting British specimens of the Motacilla flava of Ray, which had been shot by Mr. Thirtle, of Lowestoft.

Mr. Gould also called the attention of the meeting to three beautiful specimens of Steller's duck, which had been brought for exhibition by Mr. Stevens.

The Secretary read a paper by M. Deshayes, on new shells from the collections of Mr. Cuming and himself, in which were descriptions of 75 new species of the genus Terebra.

Dr. Gray read a paper 'On a New Genus of Mytilidæ, and on some distorted forms which occur among Bivalve Shells.'

Dr. Gray also read a paper containing 'Observations on the Genus Nerita and their Operculum.' His study of Mollusca had proved to him that few parts offer more important and better characters for separation of the families, genera and species, than the operculum; and he proceeded to show how well this was illustrated in the family Neritidæ.—*D. W. M.*

ENTOMOLOGICAL SOCIETY.

Anniversary Meeting, January 25, 1858.—W. WILSON SAUNDERS, Esq., President, in the Chair.

F. Smith, J. T. Syme, J. O. Westwood, and J. S. Wilkinson, Esqrs., were elected Members of the Council, in the room of J. Lubbock, H. T. Stainton, G. R. Waterhouse, and T. V. Wollaston, Esqrs.; and the following were elected to fill the respective offices for the year: Dr, J. E. Gray, President; S. Stevens, Esq., Treasurer; E. Shepherd and E. W. Janson, Esqrs., Secretaries.

The Report of the Council to the Society, which stated that the typical specimens had been withdrawn from the collection of exotic insects, and recommended a speedy sale of the remainder, was read and received.

Mr. Stainton, one of the Auditors, read an abstract of the Treasurer's accounts, showing a balance of £75 *9s. 6d.* in favour of the Society, above all liabilities.

The President delivered an Address on the affairs of the Society and the general progress of the Science, for which, and his able services to the Society during his term of office, the Meeting passed a cordial vote of thanks, with a request that he would allow his address to be printed.

The President, in returning thanks, expressed his willingness to print the Address at his own expense.

A vote of thanks was then passed to the Treasurer and Secretaries, for their services to the Society.

February 1, 1858.—F. SMITH, Esq., in the Chair.

The Secretary read a letter from the President of the Society, Dr. J. E. Gray (who was unavoidably absent), in which he nominated as Vice-Presidents for the year W. W. Saunders, Esq., J. O. Westwood, Esq., and F. Smith, Esq.

Donations.

The following donations were announced, and thanks ordered to be given to the donors:—'Transactions of the Linnean Society,' Vol. xxii., Part 2; presented by the Society. 'Mémoires d'Entomologie publiés par la Société Entomologique des Pays-Bas,' Livraisons 1, 2 & 3; by the Society. 'Exotic Butterflies,' Part 25; by W. W. Saunders, Esq. 'Genera des Coléoptères,' Tome iv.; by the Author, Prof. Lacordaire. 'Proceedings of the Royal Society,' Vol. ix., No. 28; by the Society. 'The

Literary Gazette' for January; by the Editor. 'The Journal of the Society of Arts' for January; by the Editor. 'Biographical Notice of the late Professor Carlo Passerini.' 'The Zoologist' for February; by the Editor. 'Description de Longicornes Nouveaux du vieux Calabar,' par M. A. Chevrolat; by the Author. 'Linnæa Entomologica,' Zwölfte Band; by the Entomological Society of Stettin.

Election of a Member.

R. B. Were, Esq., 35, Osborne Terrace, Clapham Road (formerly a Subscriber to the Society), was balloted for and elected a Member.

Exhibitions.

Mr. Stevens exhibited some Lepidoptera and Coleoptera sent from Port Natal by M. Gueinzius: amongst the former were specimens of Charaxis, Zoolina, Sælamis, Cloantha, and some beautiful species of Bombycidæ; also an Adela closely resembling the A. Degeerella of Europe: the Coleoptera included Hypselogenia geotrupina, Sternetornus Bohemanni, Eunostus Gueinzii, and eight species of Paussus.

Mr. Stevens observed that Eunostus Gueinzii was stated by M. Gueinzius to be nocturnal in its habits, and this appeared to be generally the case with pale-coloured insects: the pale Megacephala taken by Mr. Bates on the Amazon was said by him to be a strictly nocturnal species.

Mr. Smith observed, in corroboration of this theory, that the pale-coloured Vespa Doryloides, *Sauss.*, lately sent home by Mr. Wallace from Borneo, was said to be found at night only, which was the more interesting as no other species of wasp was yet known to be nocturnal.

The following notes, which accompanied the collection exhibited by Mr Stevens, were communicated by M. Gueinzius:—

On the Habits of Paussidæ, &c.

"Except the specimens of Paussidæ which have been attracted by candle-light, I have never found a specimen elsewhere than in ants' nests, except one, and that a new species, in this collection, which I found in the hot sunshine, sitting upon a blade of grass, no doubt quite accidentally. They all live with species of ants which are carnivorous: Cerapterus, Pleuropterus and Pentaplatarthrus with different larger species, but the true Paussi seem to live only with our small species; at least I have found P. cucullatus, P. Dohrnii, P. Latreillii, P. Shuckardii, and three other species in the collection, all with one and the same species.

"One night last summer I heard a slight tap on a window-pane, as from a grain of gravel: upon going out with the candle I found it was a Paussus (similar to Dohrnii), of which I had not seen a specimen for some years: not half an hour afterwards I heard the same sound on the same window, and found a second specimen. Although I did not observe the sex, there is little doubt that the first specimen was a female, and the second a male. In a number of instances I have observed that the females of Coleoptera move some time before the males. I observed one morning a female Eudicella Smithii settle on a branch of a shrub before my door; not half an hour after I had removed it a male had settled on the very same spot. An enormous female Sternotornis niveisparsa (attracted by the candle) will strike the window so as nearly to break the pane, when some time after the smaller-sized male will arrive at the same window. In the same way, and under the same circumstances, I have obtained two rare species of smaller Scarites, always in pairs; and so it appears that these beetles are able to trace the flight of the opposite sex through the air, a good while after it has passed. Paussi appear in the month of November, and last during the whole season until April: their caustic juice is squirted out of the sides of the abdomen; part of it evaporates immediately as a blue smoke, distinctly visible by sunlight; the remainder covers both sides of the elytra, and remains as a whitish or pale yellow unctuous matter. I have repeatedly found P. Latreillii in the act of copulation in ants' nests. The specimens are nearly always found in the part of the nest where the eggs and pupæ are deposited; and although I have never yet observed a Paussus in the act of feeding, yet, from the great and mysterious attachment which the ants show them, I am inclined to believe that they feed upon the spoil which the ants convey into the nests, rather than upon their eggs or pupæ: I believe, likewise, that the eggs of the Paussi are there deposited and bred, and it is not impossible that their larvæ are fed by the ants as their own offspring. The sunny sides of the margins of forests are the places where Paussi are generally met with; a piece of old dry wood is seldom found without an ants' nest beneath it (stones get too hot in the sun): when the weather is very dry they remain below ground, but when moist they ascend and carry their eggs and pupæ to the surface under the wood: when this shelter is carefully lifted up on one side, I have often observed a Paussus (P. Dohrnii, cucullatus or Latreillii), surrounded and covered with ants, apparently sucking nourishment out of him, and fondling him all the time with their antennæ, as they do the Aphides and larvæ of Centroti, and other lamellicorn Coleoptera found with ants.

"When the alarm is given in a nest, and all is hurry and bustle to save eggs and pupæ, two or three ants will seize the sluggish Paussus by the antennæ, and he is quickly hurried below with the rest. I can discern no difference in the odour emitted by P. cucullatus and P. Latreillii, when exploding, and that which is perceived on opening an ants' nest on a hot day."

Captain Cox exhibited some diagrams illustrating the economy of Scolytus destructor, and read the following communication, pursuant to notice given at the last Meeting:—

On the Ravages of Scolytus destructor.

"Ten years have nearly elapsed since the Royal Botanic Society of London awarded me their medal, and had my Paper (read before the Society in 1848) published for distribution among the Fellows and Members. Mr. R. Marnock (the Curator) then stated 'that the results of the operations recommended in that Paper had been most satisfactory, and had proved highly beneficial to the trees.' As I feel certain that I shall nearly stand alone in the views I have taken of the habits of the Scolytus destructor, it is most essential that I should avail myself of the powerful testimony of the award made by the Royal Botanic Society of London, and of the report of the

Curator, to assist me in bringing conclusive evidence before you that we are now perfectly acquainted with the true habits of the Scolytus destructor, and the means of arresting its future progress; it is most peculiarly fitting now that Science should step in and prove that over one pest at least we have power, and if not made use of the fault lies entirely with the public.

"Among the various pests that are constantly claiming attention by their obnoxious powers, the Scolytus destructor holds no mean rank: the elm is one of the most useful trees we have in this country; it suits our climate, is extremely ornamental and flourishes where others would not thrive so well, its timber is made use of in various ways, and therefore its preservation is alike advantageous to our ornamental parks and woodland scenery. Previous to 1840 the Scolytus destructor was known, but its habits not perfectly understood: it was during the formation of the Royal Botanic Gardens that my attention was first directed to the sickly state of the elms forming the belt of the inner circle of the Regent's Park; the axe was constantly being applied, and large and increasing gaps pointed to where the trees had stood and where destruction was going on: on enquiring of the parties laying out the grounds as to the cause of the premature decay of these fine young trees, I was informed that 'some had perished by having an inner embankment formed to prevent parties outside the garden from looking over, and consequently a portion of earth had been raised round their stems, and that others had died, and were dying from their roots entering the gravel.' Now, if this latter information were true, I could not understand why the circle of trees, separated by only a few yards from them, and forming the next circle, were healthy, all being of the same age. In all cases where the destruction was going on I found the Scolytus in great profusion: on mentioning this circumstance to the Curator, the old stereotyped answer came in due form, 'that this beetle always attacked sickly and deceased elms, and were since to be found in all places where this timber had fallen or had been conveyed, either decaying along the road-side or drawn into the timber-yard.' Now, in the first place, I was not satisfied in my own mind that the trees were perishing from the assigned causes; the coincidence was too remarkable not to be noticed, and I felt sure that there was something more than the embanking and gravel to account for the rapid death of so many young trees in different parts of the belt, more especially as my attention had been called, in 1842, to the state of the trees in St. James' Park; with a very little reflection I felt convinced that insects had something at least to do with the matter, and that among them, if the Scolytus destructor were not the first and absolute cause, their presence acted most injuriously by still more disabling the already impeded circulation of the sap: being fully impressed, after further close and most attentive examination into the subject, of their powerful influence, I made it my business to study their habits, and soon became so far master of them that I was induced, in 1843, to read a paper upon the subject before the Royal Botanic Society, and detailed a mode of treatment I felt almost certain would succeed: as the trees in the park belong to Her Majesty's Woods and Forests, the Council of the Society applied for permission to allow me to experiment upon some, and a row of eighteen, fairly selected, were placed at my disposal.

"The following eighteen trees were granted by the Commissioners of Woods and Forests in 1843:—

No.	Scolytus.	Cossus.	Condition—1843.	Condition—1847.	Condition—1849.
1	" *	0	Slightly.	Nearly recovered.	Recovered.
2	"	"	Most severely, dying.	Dead.	Dead, removed.
3	"	"	Most severely.	Nearly recovered.	Recovered.
4	0	"	Slightly.	Recovered.	Do.
5	"	0	Do.	Do.	Do.
6	"	0	Do.	Do.	Do.
7	"	"	Severely.	Do.	Do.
8	"	"	Slightly.	Do.	Do.
9	"	"	Most severely.	Nearly recovered.	Do.
10	0	"	Slightly.	Recovered.	Do.
11	"	"	Very severely.	Do.	Do.
12	0	"	Slightly.	Do.	Do.
13	"	"	Very severely.	Do.	Do.
14	0	"	Slightly.	Do.	Do.
15	"	"	Most severely.	Nearly recovered.	Do.
16	0	"	Do.	Do.	Do.
17	"	"	Slightly.	Do.	Do.
18	0	"	Most severely	Do.	Do.

"From this table the condition of the trees will be seen previous to being submitted to my plan. Now, before we proceed to speak of treatment, there are two very important stages to be settled: first, is the tree diseased before it is attacked by the Scolytus? and, in the second place, does the attack of the Scolytus prove injurious to the tree?

"As regards the condition of the tree, I think we had in the Garden of the Royal Botanic Society a sufficient number of sickly ones to enable us to come to a very fair conclusion. The number first planted was 242; in 1843, 67 had a healthy appearance; 66 were attacked by the Scolytus, 10 by the larvæ of Cossus Ligniperda; 99 had sickened or died, and had been cut down, 62 of which sprouted again, and 37 quite perished. With respect to the condition of the healthy ones, the embankment equally adjoined them in places; but of the 18 that were allotted to me no embankment existed; therefore this could not have been the cause of Nos. 2, 3, 7, 9, 11, 13, 15, 16 and 18 having such a sickly appearance; and if it arose from their roots penetrating a gravelly soil, the mere fact of partially barking could by no possibility restore them to health and vigour. I think we may fairly say that this is a self-evident proposition. And, again, what is the appearance of a tree languishing from defective soil? We see it first in the leaf, which is small and unhealthy in colour; the terminal branches next gradually decay, piece after piece breaking away, until the longer branches present what is generally called a 'stag-horned appearance,' and the tree finally perishes; but this is not brought about in a day or a week, being usually the affair of some few years, for as long as nutriment can be obtained the crippled tree exists in its withering and fading condition. But when we find a tree dead, with terminal branches profuse and perfect, we certainly, under ordinary circumstances, should not say that tree had died from defective nutrition in the soil, but that, from

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* The presence of either Scolytus destructor or Cossus larvæ is indicated by " according to the heading of the column in which they appear.

some cause or another, it had suddenly, as it were, come to an untimely end; and such a tree we had in the Gardens; I watched it in its beauty, and in three years saw it cut down and carried away dead; but what a sight met our view on removing the bark!—the surface of the trunk, as many gentlemen will remember (for I exhibited a piece of it, 3 feet long, before this Society), was beautifully scored by the lateral tubes of the Scolytus larvæ; and we reckoned that this solitary tree gave birth to no less than the prodigious number of 280,000 perfect insects! Well may we be transfixed with astonishment; but the greater wonder is that an elm should still be found to grace our ornamental parks. I may now fairly presume to state that the 18 sickly trees were not in the least suffering from defective nourishment at the roots, nor had their stems been embanked in soil; and yet many of them were evidently dying; but one thing was very apparent, namely, that in proportion to the sickly condition of the tree so we found the increase of Scolyti. And this leads us to the second question,—Does the attack of the Scolytus prove injurious to the tree?

"The Scolytus destructor is known to many present; it is a small dark beetle, belonging to the family Bostricidæ of Leach. When the first warmth of spring sets in the perfect insect escapes from beneath the bark, by eating its way out; the female soon after selects a tree for the purpose of depositing her ova; she commences her perforation always beneath a little projecting piece of bark at the upper end of a crack; she bores inwards and upwards until on the surface of the alburnum, when she ascends direct; the tube thus formed is from 2 to 3½ inches in length, ¾ths of a line in diameter, and of equal size throughout, except at a short distance from its entrance, where a small cavity is usually found sufficiently large to allow the parent insect to turn; on each side, in small crenules, she deposits her eggs as she advances, and closes the aperture with some plastic material; the number of eggs is in proportion to the length of tube (and this is very much influenced by the condition of the under surface of the bark, for if the Scolyti abound the parent ceases boring, so as not to perforate the workings of another when she approaches it); only a small septum divides each; there are generally from 60 to 70. On bursting their shells the young larvæ immediately commence feeding on the last deposit of alburnum; they at first form parallel transverse lines or tubes, which are seen to gradually enlarge and diverge, and are filled with exuviæ as the larvæ progress onwards; their increasing size now oblige those larvæ first hatched to bore downwards, the centre ones outwards, and the last upwards; here they continue to feed during the summer, autumn and winter (if mild): when full-grown they form a case, in which they change to the pupa state; and then, at the end of May or beginning of June, they eat their way out through the substance of the bark, and leave those shot-like holes showing their plan of exit: they now fly about for a short time, and then the females commence the process for perpetuating their species, by laying their eggs. I believe after they have once commenced boring and depositing their ova they never take wing again: as soon as the female has deposited all her eggs, with her head pointing inwards, she dies at the entrance of her tube, thus, as it were, even in death performing a maternal duty, by closing the aperture to her young ones with her dead body. It is very rare to find a parent tube without the insect, although no doubt they occasionally become a prey to various smaller insects. It is the frass the female ejects from the tube that leads to the detection of the presence of the brood, for were it not for this fortunate circumstance we should never be apprised of the destruction going on within the tree until the escape of the mature insect, in spring, shows the exit-holes.

"I will not trespass more now into detail, but simply state that each family will destroy nearly four square inches of bark. Granting, therefore, even the possibility of the Scolyti being attracted by the sickening state of a tree, here we find one parent insect has the power of destroying a large portion of bark, and consequently must rapidly hasten the final decay. No doubt where the insect abounds it will perforate the bark of fresh-hewed timber; but I have never found one specimen in an elm whose juices were dried up. Therefore, irrespective of the cause of disease, it must be unanimously granted that an insect which can destroy four square inches of bark by detaching it from the alburnum must prove highly destructive, and, whilst permitted to remain, frustrate any attempt to restore health. If, in the absence of any true and logical cause, we have found elm trees sickening and dying, and their bark bearing the unequivocal signs of the Scolyti, and simply by a process of partial barking and removing the Scolyti larvæ, we arrest the decay of those not too far advanced, and in a comparatively short period restore them to health and beauty, we have every rational right to infer that the Scolyti, and the Scolyti alone, were the aggressors in the first instance, and destroyers in the second; and still more, that when we find the whole of the diseased trees in the Royal Botanic Gardens perfectly recovered in 1849, and now (1858) bearing all the impress of vigour, so that in many the fearful scars once made are now hidden from sight, and buried by the overlapping of succeeding yearly deposits, I think this Society will ask no further proofs at my hands of the sound and practical results that have followed the simple and easy process of partial barking; that the lapse of so many years establishes beyond a doubt its great utility; and that, in the absence of any other advanced system for arresting the spread of the Scolyti in particular, this plan ought to be strongly advocated ere another year sends forth its thousands to still more diminish the number of these noble and beautiful ornaments to our parks and pleasure-grounds.

"The plan I adopt for destroying the insect is very simple: as the frass always indicates the aperture to the tube, and as this always ascends directly upwards, so by paring off the old exuvial bark we lay bare the tube and completely destroy the young brood. I strongly advocate clearing off all the old bark of elms where the Scolyti abound: in the first place, the trees actually seem to improve by the process; in the next place, the Scolyti cannot find the shelter of the overhanging bark, and therefore are more liable to become the prey of birds; and finally, you detect at once the presence of any fresh attack. I believe the process adopted in France, of taking the whole bark off down to the alburnum, is fraught with great risk; it did not succeed in a tree that I saw, nor can I conceive a more unnatural operation. I merely cut the insect out, the tree is scarcely injured by the process, and a few years obliterates all trace of the operation. The instrument I prefer is a simple draw-shave, known to coopers and carpenters; it is very easily used, and answers the purpose admirably: in using it all we have to do is to cut down to the parent tube, and then lay bare the lateral tubes to their end, taking care that no larvæ remain; the healthy alburnum is therefore not injured, 'causa sublata æger verelescit.'"

Mr. S. S. Saunders read a paper intituled "Observations on the Habits of the Dipterous Genus Conops," and exhibited the larva, pupa and imago of a species of that genus, which he had reared from Pompilus audax.

Mr. Westwood read the description of a new genus of Carabideous insects, belonging to the Scaritides, having the outward appearance of the Heteromerous genus

Adelostoma (differing from all the known Scaritides in the opaque surface of the body), and remarkable for the two deep oblique canals on the under side of the head, united behind in front of the very small neck, and within which the antennæ are lodged when at rest. The genus is founded on a single species recently sent from the River Amazon by Mr. Bates, to which Mr. Westwood applied the name of Solenogenys fæda.

Part VI. of the current volume of the Society's 'Transactions' was on the table.—*E. S.*

DUBLIN UNIVERSITY ZOOLOGICAL AND BOTANICAL ASSOCIATION.

January 15, 1858.—Professor W. H. HARVEY, M.D., F.L.S., in the Chair.

The minutes of last General Meeting being read, were approved of and signed by the Chairman.

Mr. E. Percival Wright read a *resumé* of a paper on the classification of the Cœlenterata, which had been laid before the Association in December last by Professor J. Reay Greene, of Cork.

He also made some remarks on our knowledge of parthenogenesis, a subject about which much had been written by Owen, Waldo, Burnett, Sallock, Huxley, Siebold and others. Not that all these authors used the word to express the same idea—perhaps the term should be limited, as it is by Siebold, to the production of a perfect individual from a germ cell, without it receiving any stimulus from the sperm cell. It is known, to use the language of Quatrefages, that both in plants and animals the concurrence of two agents is necessary in order to assure the perpetuity of species. Among plants flowers are generally both male and female, thus realizing one of the most graceful fictions of pagan mythology. Around the pistil which encloses the ovule are grouped the stamens, whose pollen is destined to fecundate this germ and to determine its development under the form of seed or fruit. In many cases, however, the sexes are separated. Growing sometimes on the same tree, and sometimes on different trees, the male and female flowers require the aid of some intermediate agent to effect their union, and thus the winds convey to the pistil of these flowers the vivifying emanations by which alone it can be fructified. These diverse relations are all to be met with in the animal kingdom. Here also the myth of the son of Venus and Mercury becomes a reality, and here the ocean's wave and the river currrent takes the place of the winds of heaven. This general law had, however, some exceptions, and the startling revelations of Dzierzon, pastor of Carlsmarkt, in Silesia, as told us by Siebold, show how that the eggs which the queen bee lays the moment she emerges from her chrysalis state are developed into drone bees.

Professor Harvey had been greatly pleased with Mr. J. Reay Greene's paper, which was on a very interesting subject. It was well known that the male plant of one of the Euphorbiacea had never yet been discovered, and yet the female flowers produced perfect seeds, which, on being sown, in their turn produced perfect plants.

Professor Kinahan read a list of the various ferns found in Powerscourt demesne on the last excursion of the Association.

The Rev. Eugene O'Meara also read a list of the Diatomacea found upon the same occasion, and exhibited specimens under his microscope.

Professor R. W. Smith gave an account, illustrated by sketches, of some curious monstrosities of ferns he had lately discovered.

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MR. J. C. STEVENS is instructed by the Council of the Entomological Society of London to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, W.C., early in April next, the Collection of EXOTIC INSECTS of all Orders belonging to the Society, it having been resolved, in pursuance of the Resolution passed at the Anniversary Meeting of the Society, held on the 28th of January, 1856, and approved and confirmed at the Anniversary on the 25th of January last, to dispose of the whole Exotic Collection (except the Typical Specimens), which includes a vast number of Species, of great rarity and interest, in COLEOPTERA, LEPIDOPTERA, and other Orders, mostly in a fine state of preservation, which will be submitted to Public Auction as above.

Catalogues will be ready 3 weeks prior to the Sale.

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